

Notice of Allowability

Application No.

10/808,779

Applicant(s)

KIM, JAE-SHIK

Examiner

Ruth C. Rodriguez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 30 March 2007.
2. ☒ The allowed claim(s) is/are 1-11, 13-15, 17-24 and 26-30.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance:

For claim 1, Chen discloses a rotary type hinge device comprises a first rotation axis, a second rotation axis, a first hinge housing, a main shaft and a second hinge housing. The first rotation axis opens and closes a folder with respect to the terminal body. The second rotation axis extending perpendicular to the first rotation axis and rotates relative to the first rotation axis. The hinge device rotates the folder about the second rotation axis in a state wherein the folder and terminal body are opened. The first hinge housing is coupled to the terminal body to rotate about the first rotation axis. The first hinge housing is formed with a fixing portion at its inner peripheral surface and an opening adapted to expose the fixing portion in a direction of the second rotation axis. The main shaft is provided at one end with a fixing end having a shape corresponding to that of the fixing portion. The main shaft extends in the direction of the second rotation axis and being adapted to protrude outwardly through the opening of the first hinge housing at the other end thereof. The second hinge housing rotatably couples to the other end of the main shaft protruding outwardly from the first hinge housing and adapted to rotate about the second rotation axis. The second hinge housing is fixed to the folder. Chen fails to disclose a flexible printed circuit protruding

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from an interior space of the folder and extending longitudinally at one side of the main shaft entering the first hinge housing through the opening and the flexible printed circuit is wound at least half way around the main shaft within the first hinge housing and then drawn from one side end of the first housing. Kfoury teaches a rotary type hinge comprises a first rotation axis, a second rotation axis, a first hinge housing and a second hinge housing. The first rotation axis opens and closes a folder with respect to the terminal body. The second rotation axis extending perpendicular to the first rotation axis and rotates relative to the first rotation axis. The hinge device rotates the folder about the second rotation axis in a state. The folder and terminal body are opened with the first hinge housing coupled to the terminal body to rotate about the first rotation axis. The first hinge housing being formed with a fixing portion at its inner peripheral surface and an opening adapted to expose the fixing portion in a direction of the second rotation axis. The second hinge housing is fixed to the folder and fixed to the fixing portion of the first hinge housing. A flexible printed circuit protrudes from an interior space of the folder and enters the second hinge housing with the printed circuit being completely surrounded by the second hinge housing and entering the first hinge housing through the opening and being completely surrounded by the first hinge housing until it exits one of its ends. Although Kfoury teaches the use of a flexible printed circuit between the first and second hinge housings, it would not have been obvious to one having ordinary skill in the art at the time the invention was made to have a flexible printed circuit protruding from an interior space of the folder and extending longitudinally at one side of the main shaft entering the first hinge housing through the opening and the flexible

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printed circuit is wound at least half way around the main shaft within the first hinge housing and then drawn from one side end of the first housing since the flexible printed circuit taught by Kfoury is always completely surrounded by the first and second hinge housings without having any elements disposed inside the first and second hinge housings and first claim requires that the flexible printed circuit is wound at least half way around the main shaft that is disposed within the first hinge housing and then drawn from one side end of the first housing.

Regarding claim 15, Chen discloses a rotary type hinge device comprises a first rotation axis, a second rotation axis, a first hinge housing, a main shaft and a second hinge housing. The first rotation axis opens and closes a folder with respect to the terminal body. The second rotation axis extending perpendicular to the first rotation axis and rotates relative to the first rotation axis. The hinge device rotates the folder about the second rotation axis in a state wherein the folder and terminal body are opened. The first hinge housing is coupled to the terminal body to rotate about the first rotation axis. The first hinge housing is formed with a fixing portion at its inner peripheral surface and an opening adapted to expose the fixing portion in a direction of the second rotation axis. The main shaft is provided at one end with a fixing end having a shape corresponding to that of the fixing portion. The main shaft extends in the direction of the second rotation axis and being adapted to protrude outwardly through the opening of the first hinge housing at the other end thereof. The second hinge housing rotatably couples to the other end of the main shaft protruding outwardly from the first hinge housing and adapted to rotate about the second rotation axis. The

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second hinge housing is fixed to the folder. A second perforated hole is formed at a lower end surface of the second hinge. Chen fails to disclose that the hinge device further comprises a shaft cam and stopper cams where the shaft cam is provided at the other end of the main shaft and inserted through the perforated hole to be positioned within the second hinge housing with the shaft cam being formed at its outer peripheral surface with at least one pair of stopper recesses arranged on opposite sides of the shaft cam and stopper cams formed at their respective one ends with stopper projections having a shape corresponding to the stopper recesses respectively so that the stopper cams stop a rotation of the second hinge housing by receiving an elastic force within the second hinge housing at a position that the stopper recesses and stopper projections come into close contact with each other with the stopper cams linearly reciprocating within the second hinge housing in accordance with the rotation of the second hinge housing. Accordingly, it would not have been obvious to one having ordinary skill in the art at the time of Applicant's invention to provide at least a pair of stopper recesses formed in the end of the main shaft that is disposed within the second hinge housing while providing a pair of biased stopper cams that contact the stopper recessed of the main shaft to stop a rotation of the second hinge housing.

For claim 21, Chen discloses a rotary type hinge device comprises a first rotation axis, a second rotation axis, a first hinge housing, a main shaft and a second hinge housing. The first rotation axis opens and closes a folder with respect to the terminal body. The second rotation axis extending perpendicular to the first rotation axis and rotates relative to the first rotation axis. The hinge device rotates the folder about the

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second rotation axis in a state wherein the folder and terminal body are opened. The first hinge housing is coupled to the terminal body to rotate about the first rotation axis. The first hinge housing is formed with a fixing portion at its inner peripheral surface and an opening adapted to expose the fixing portion in a direction of the second rotation axis. The main shaft is provided at one end with a fixing end having a shape corresponding to that of the fixing portion. The main shaft extends in the direction of the second rotation axis and being adapted to protrude outwardly through the opening of the first hinge housing at the other end thereof. The second hinge housing rotatably couples to the other end of the main shaft protruding outwardly from the first hinge housing and adapted to rotate about the second rotation axis. The second hinge housing is fixed to the folder. Chen fails to disclose that a shaft cam being formed at its outer peripheral surface positioned within the second hinge housing with at least two pairs of stopper surfaces arranged on opposite sides of the shaft cam and stopper cams formed at their respective one ends with stopper recesses having a shape corresponding to corners formed by adjacent stopper surfaces so that the stopper cams stop a rotation of the second hinge housing by receiving a certain elastic force within the second hinge housing at a position that the corners of the shaft cam and the stopper recesses come into close contact with each other with the stopper cams linearly reciprocating within the second hinge housing in accordance with the rotation of the second hinge housing wherein the main shaft penetrates the second hinge housing. Accordingly, it would not have been obvious to one having ordinary skill in the art at the time of Applicant's invention to provide at least a shaft cam with at least a pair of

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stopper surfaces formed in the end of the main shaft that is disposed within the second hinge housing while providing a pair of biased stopper cams having stopper recesses that contact the stopper surfaces of the main shaft to stop a rotation of the second hinge housing.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ruth C Rodriguez whose telephone number is (571) 272-7070. The examiner can normally be reached on M-F 07:15 - 15:45.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. J. Swann can be reached on (571) 272-7075.

Submissions of your responses by facsimile transmission are encouraged. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-6640.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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Status information for unpublished applications is available through Private PAIR only.

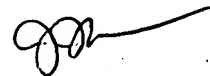
For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Ruth C. Rodriguez
Patent Examiner
Art Unit 3677

rcr
May 2, 2007



J. J. SWANN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600